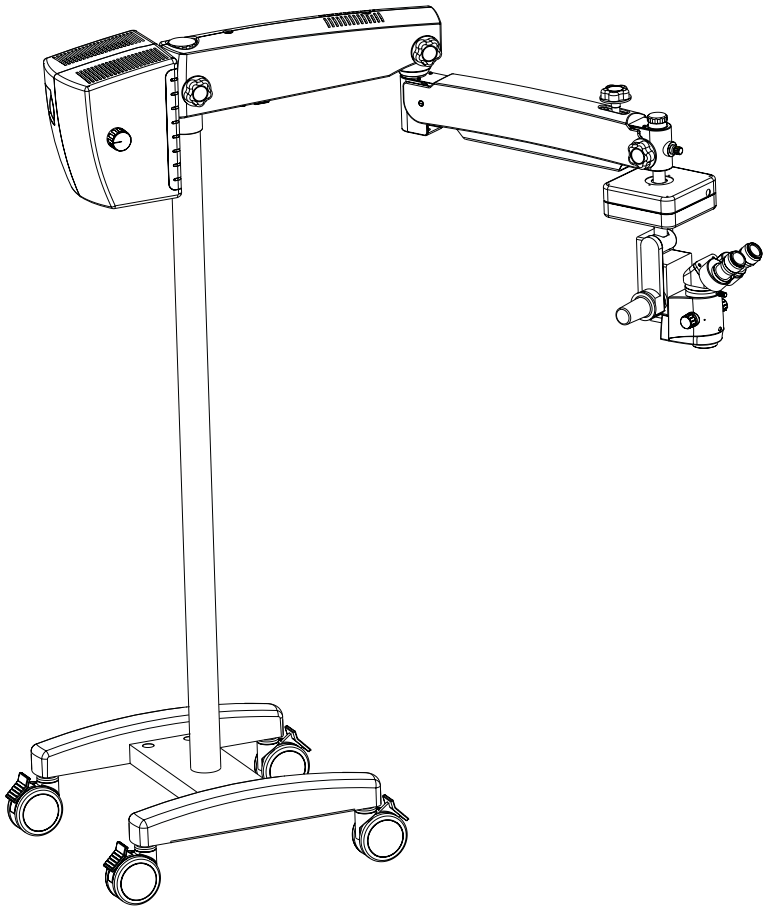
LABOMED

Prima OPH
User Manual

Ophthalmic Microscopy



To ensure proper use of this instrument as well as to avoid injury while operating instrument, understanding this manual completely before use is highly recommended.

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1 INTRODUCTION

The LABOMED Prima OPH is an Ophthalmic microscope, which is adaptable for different surgical needs without compromise to performance.

The microscope provides extremely high optical image quality, good depth of focus and wide field of view for precise surgery. Illumination control, inbuilt tilt, adjustment of the observation head help to reduce the surgeon's work fatigue and allow comfortable use over long period.

Salient features of this Microscope are:

1. The observation head can easily be positioned with the help of suspension arm .
2. An advanced 5-step magnification changer allows an optimal magnification for a particular surgery from five different magnifications.
3. Auto home position for X-Y movement can be done by touch of a button.
4. Cold light illumination with a high intensity 150W Halogen lamp is provided using a fiber optic guide for proper illumination. The illumination is further adjustable up to its most suitable brightness using intensity control knob suitably located at the suspension arm, and is easily approachable to the surgeon.
5. The simple lamp changing mechanism allows to change lamp quickly when the lamp in use blows during operation.
6. The power supply to the lamp automatically goes OFF when the suspension arm is raised to its top most position.
7. When the microscope is not in use, the suspension arm can be folded over the main body to store it compactly.
8. Rigid H-form base with castor wheels provides greater stability as well as mobility to the instrument.

2 SAFETY INSTRUCTIONS

1. This microscope is manufactured according to the safety norms as per CE regulation and FDA.
2. This microscope is intended for use only as prescribed in this manual.
3. Servicing and repairs are allowed through authorized persons only.
4. Replace burnt out fuses by live fuses of the same type only (rated voltage, rated current, switch – off characteristics.)
5. Use mains plug and mains socket both with protective earth conductors only.
6. Do not use force while fixing cable connections. If the male and female parts do not readily connect, make sure that they are appropriate for one another. If any of the connectors are damaged. Please contact the representative.
7. Make sure that inlets and outlets of ventilation system for cooling the housing are open (not covered).
8. The microscope is built for use in dry rooms only. Take care that no fluids enter the microscope components. Do not place any fluid-filled container on top of instrument.
9. Microscope is protected against overheating through a thermal cut-off.
10. The manufacturer will not accept any liability for damage caused by unauthorized persons tampering with the instrument; this will also forfeit any rights to claim warranty.
11. It is recommended to use the instrument only with the accessories supplied. In case you wish to use other accessory, make sure that LABOMED has certified that its use will not impair the safety of instrument.

Very important : For identification, service people must know the serial number of the microscope.

Intended Use:

The Prima OPH is a universal instrument for operative and diagnostic medical use. It is useful for optimal illumination and magnification of the attendance area with the possibility of:

1. Manual variations of magnification
2. Motorized focusing (Z-axis) through foot control
3. Motorized centering of attendance area in XY directions through a Joystick provided on the foot control (applicable to the suitable model)

3 SPECIAL INSTRUCTIONS

3.1 **Before every use and after re-equipping the instrument**

1. Check all Electrical connections.
2. Attach sterilized covers, panels or caps which have been re-moved or opened.
3. Pay special attention to labels on the instrument, such as caution label, warning triangles with exclamation marks or notes.
4. Do not cover nay ventilation openings.

3.2 **When instrument is in use**

1. Avoid looking directly into the light source, microscope objectives lens or light guide.
2. When the illumination is on, the light guide must be connected at both ends. Otherwise there is a risk of fire or burn injuries.
3. Any kind of radiations has a detrimental effect on biological tissue. This also applies to illuminating the surgical field, therefore adjust the brightness and duration of illumination on the surgical field to the absolute minimum required.
4. Adjust tension of suspension arm as per convenience.

3.3 **After every use of the instrument**

1. Switch off the Mains sullpy to the instrument.
2. When the microscope is not in use, the suspension arm can be folded over the main body for compact storage.

4 UNPACKING

The appliance is delivered in sub-assembled groups along with one set of Installation Kit and one instruction / service manual.

Please check following at the time of unpacking

1. Mobile supporting base with castor wheels, or as ordered
2. Column, as ordered
3. Illumination Box
4. Swivel arm and Suspension arm assembly
5. Cover for swivel arm
6. X-Y motorized coupling; if ordered
7. Z-axis motorized focusing attachment with magnichanger assembly
8. Foot controls, (with Joystick in case of XY model)
9. Observation Head
10. Paired Eye Pieces; as ordered
11. Power Cord
12. Set of sterilizable caps
13. Installation Kit

    a) Allen Wrench 3.00mm

    b) Allen Wrench 4.00mm

    c) Allen Wrench 5.00mm

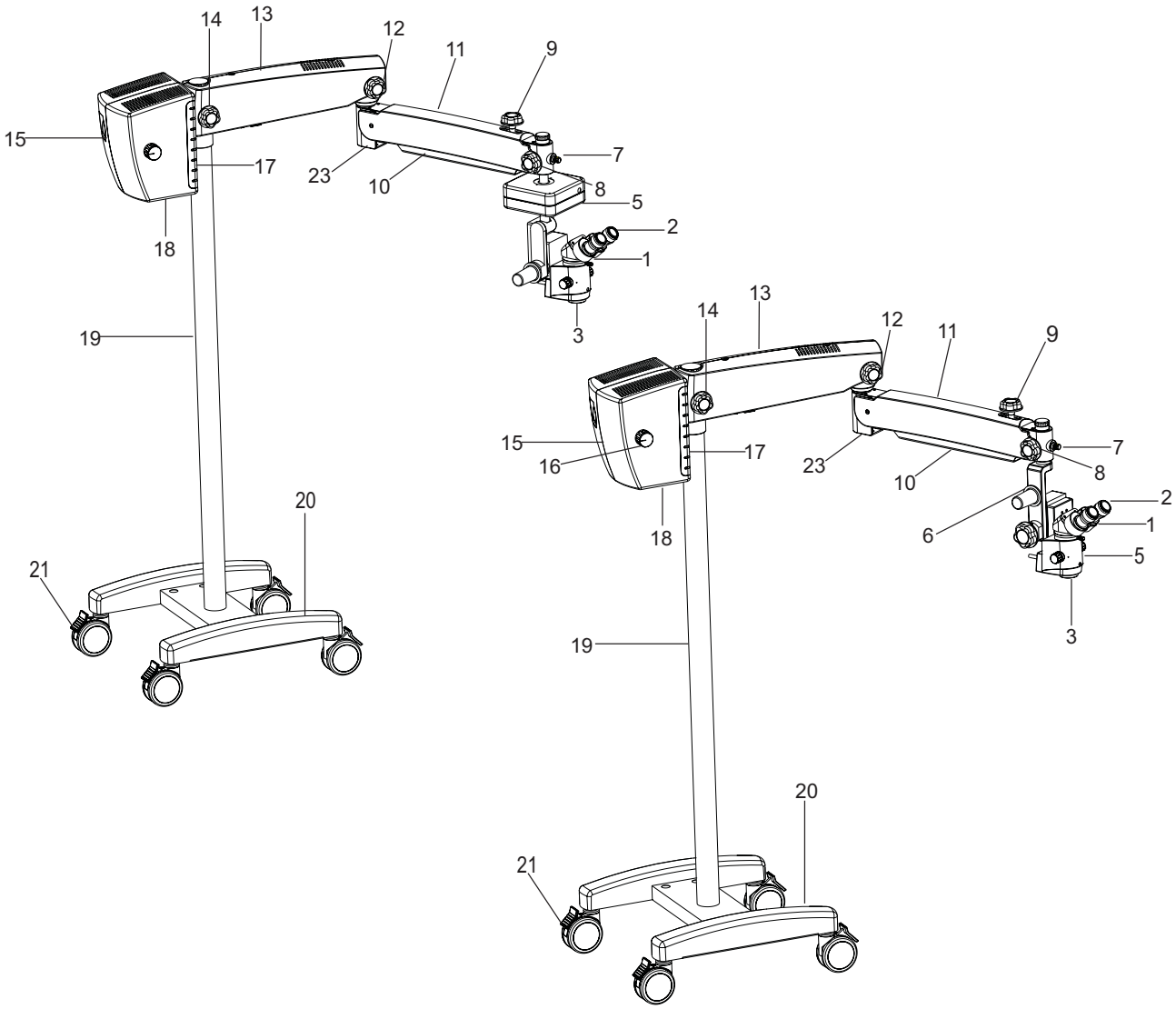
    d) Allen Wrench 6.00mm

    e) Allen Wrench 8.00mm

    f) Spanner-12/ 13mm

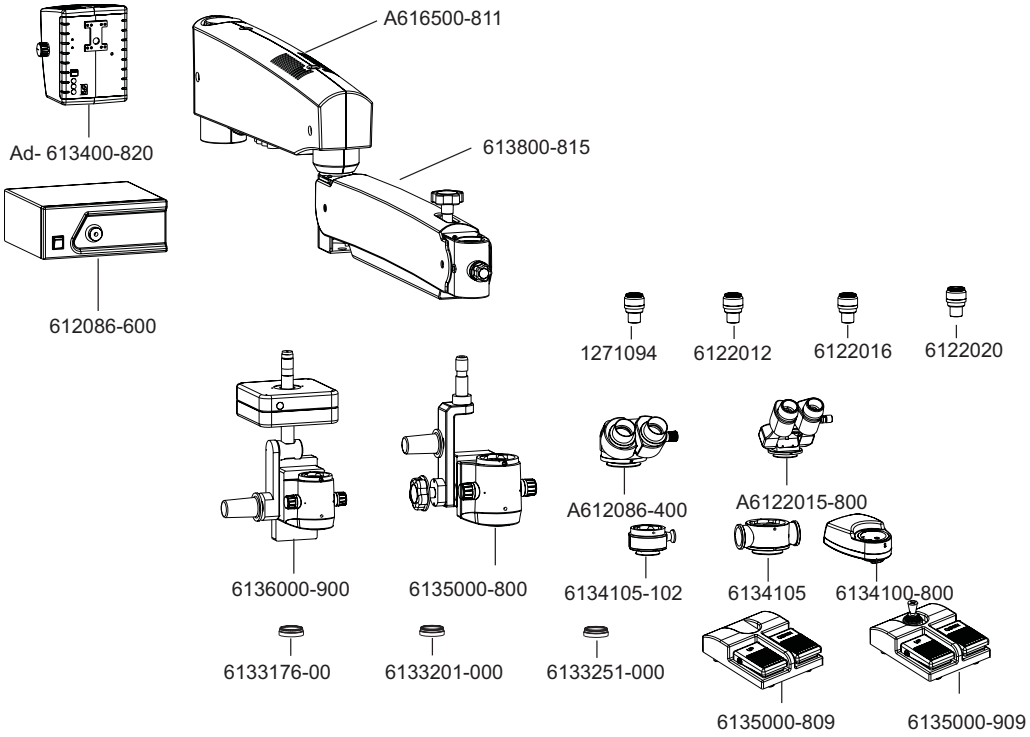
12. Instruction cum Operating Manual / Service Manual

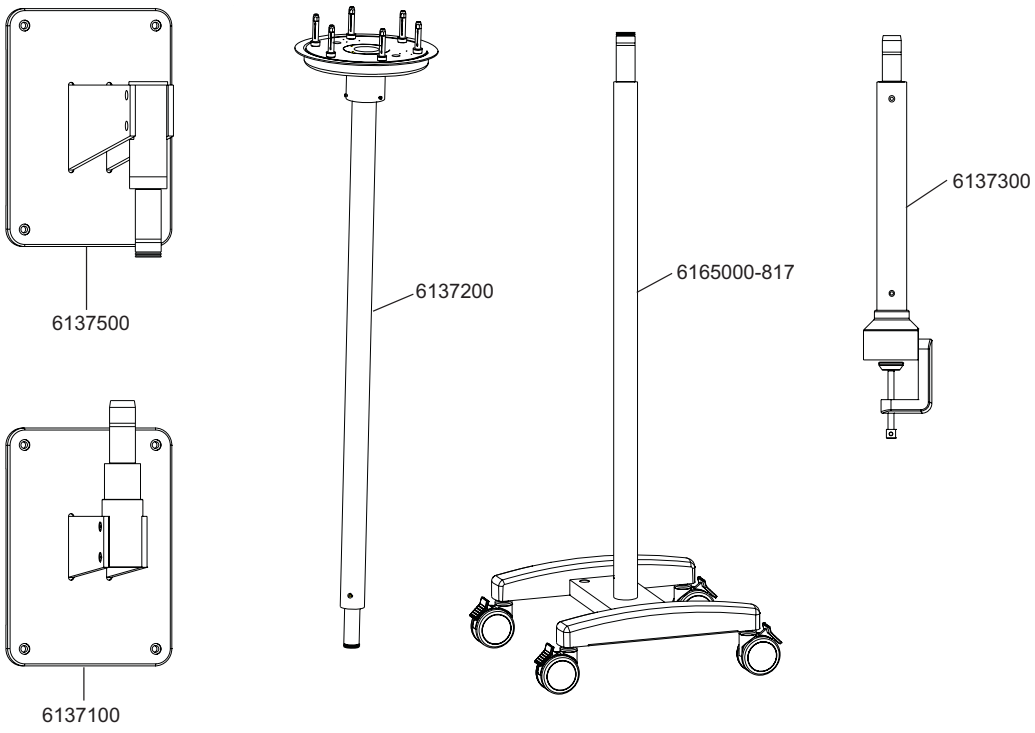
5 DESCRIPTION OF PARTS



1. Observation Head
2. Eyepieces
3. CMO - Common Main Objective
4. Fibre Optic Cable
5. X-Y Coupling
6. Z axis coupling
7. Intensity Control Knob
8. Coupling Locking Knob
9. Up/Down Movement Control Knob
10. Cable Cover
11. Suspension Arm
12. Suspension Arm Locking Knob
13. Swivel Arm
14. Swivel Arm Locking Knob
15. Illumination Box
16. Lamp Changing Knob
17. On/Off switch for Foot Control
18. Connectors
19. Pillar
20. Moveable Base
21. Castor Wheel with Lock
22. Foot Control with Joystick
23. Tension Adjustment

6 SYSTEM DIAGRAM





7 INSTRUCTIONS

7.1 Pull out the base from the wooden pallet by removing two nuts with the help of spanner provided.

7.2 Remove allen screws from bottom side of the pillar.

7.3 Put the pillar on the base and align it with the pillar guide pin (A). After aligning the screw holes with the guiding holes on base, fix the screws removed in Fig 2 using allen wrench 8mm. Fig.2 and 3.

7.4 Remove safety cap from topside of the pillar.

7.5 Place swivel arm on the pillar by sliding in the groove and rotate the suspension arm by 90° as shown in Fig.4.

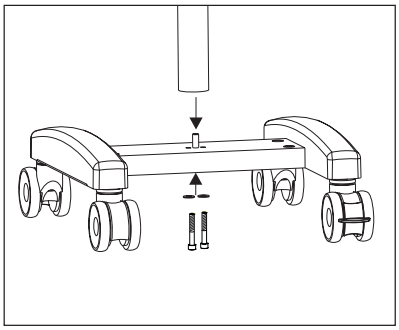


Fig. 2

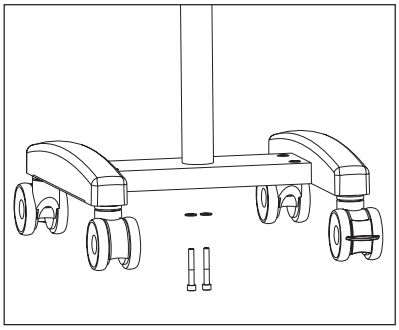


Fig. 3

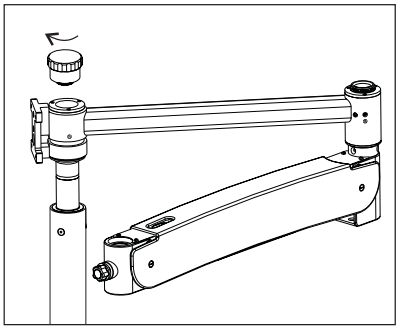


Fig. 4

7.6 Firmly tight the safety lock screw provided on the suspension arm by using allen wrench 3mm. See fig 5.

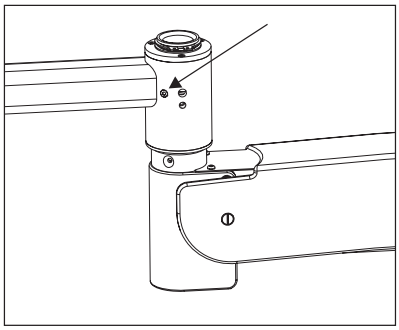


Fig. 5

7.7 Remove four allen screws from the illumination box before mounting it on pillar.

7.8 Fix the illumination box on the pillar only after having the connectors passed through the hole provided on the H- block. Refer to fig 6.

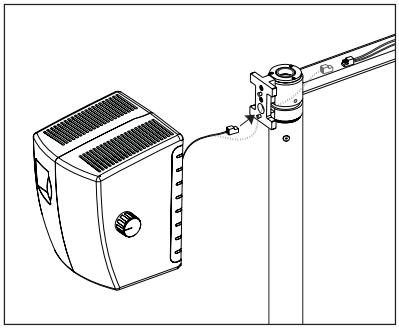


Fig. 6

7.9 Secure the illumination box with four allen screws provided using wrench 5mm. See fig 7.

7.10 Connect two appropriate male female connectors provided for electrical connection. See fig 8. Do not pull the cables too much to join the connector's. Additional force can damage wire connections.

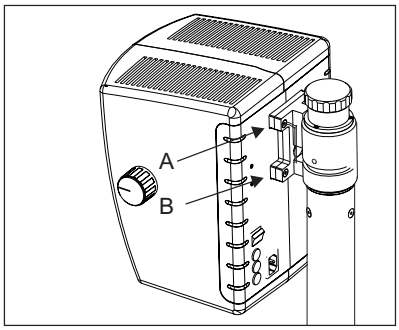


Fig. 7

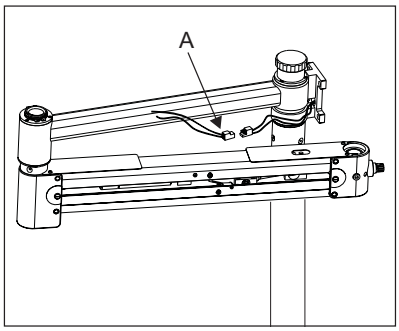


Fig. 8

7.11 Install the microscope coupling to the suspension arm prior to installing the head and eyepieces. Before installing, loosen the coupling locking knob (A) and safety position screw (B).Slide in the carrier shaft to the suspension arm and screw it with locking nut. Secure the locking knob (A) and safety position screw (C).

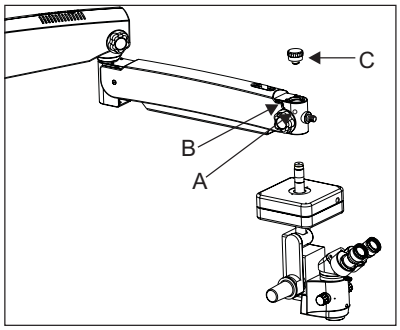


Fig. 9

7.12 Remove the caution label from the suspension arm. Unscrew safety nut (A) from the carrier and guide the shaft smoothly into the bush of suspension arm as shown in Fig. 9

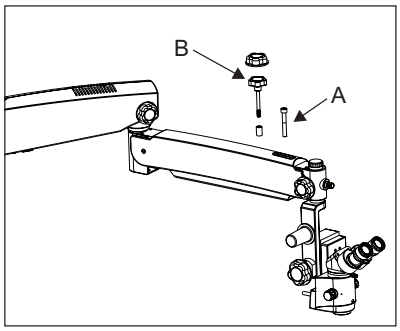


Fig. 10

7.13 Remove the cable cover by unscrewing two allen screws provided at the lower side. Run the fibre optic cable and the cable meant for intensity control knob and XYZ control through the tray.

7.14 Set the cable cover on the suspension arm by aligning the guide screw with the groove provided on the cover by using allen wrench 3mm.(Fig. 12)

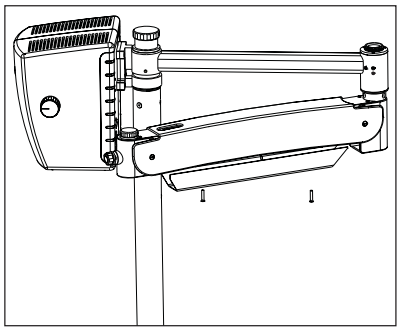


Fig. 11

7.15 Remove the swivel arm locking knobs A & B. Remove the self tapping screws fixed on the top and bottom side of cover for swivel arm. Fix these panels on swivel arm and fix back the screws removed earlier. Make sure that wire for Fibre optic is passed through while fixing the panels. See fig 11 and 12..

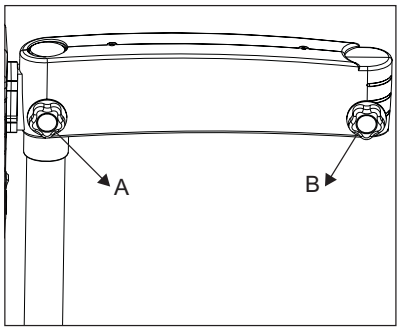


Fig. 12

7.19 Assemble fibre optic cable into the hole provided at the backside of magnichanger assembly by gently pushing it in, as shown in fig 13. A click sound will confirm correct position.

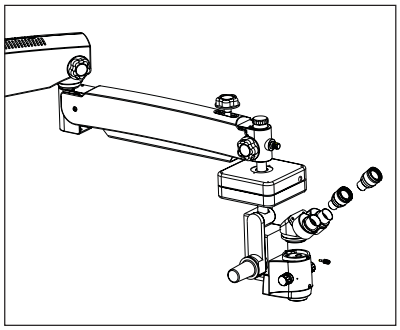


Fig. 13

7.20 Plug in the wire for foot control into the illumination box. See fig 14.

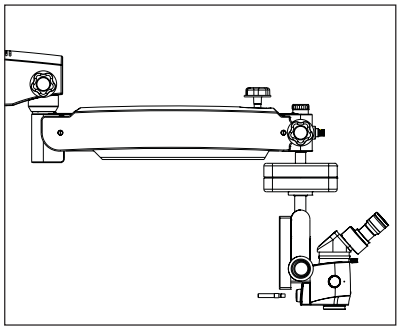


Fig. 14

8 Electrical Connections

8.1 Adjusting mains Voltage:

Connect the power cable to the AC inlet socket provided on the illumination box and check the voltage settings at the voltage selector switch. The line voltage of the electrical system is set in the factory the rated line voltage of the country of destination which must be either 110V or 220V AC. The line voltage available at the site of installation must lie within the admissible voltage range. If this is not the case you must not operate the system.

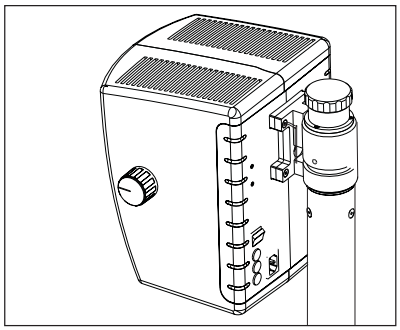


Fig. 15

8.2 Connections of Various Controls:

8.2.1 Connect 7 pin connector from X-Y coupling assembly to terminal of electrical box.

8.2.2 Connect 4 pin connector from Z-axis motorized control assembly to terminal of electrical box.

8.2.3 Connect 12-pin connector from foot control to terminal of electrical box.

This completes your electrical connections.

9 Controls

9.1 ON/OFF Switch

9.1 ON/OFF switch
It is located on the Right hand side of illumination box “1” indicates ‘ON’ position of microscope. At ‘ON’ position green LED glows and cooling fan starts running. Keep the intensity control knob at minimum level before changing / replacing the lamp.

To save burning life of lamp, switch OFF the appliance if the microscope is not in use for longer time.

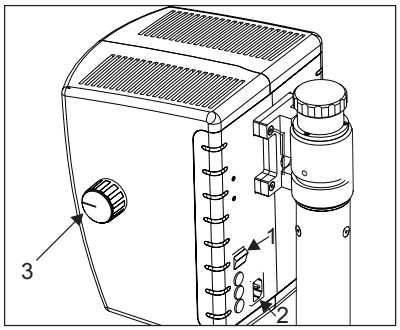


Fig. 16

9.2 Lamp changing knob
It is located on the right hand side of illumination box. If lamp blows off during the use of microscope, the Prima OPH is provided with a spare lamp. Lamp changing knob connects to the Lamp II for smooth running of the operation by turning it anti-clockwise.

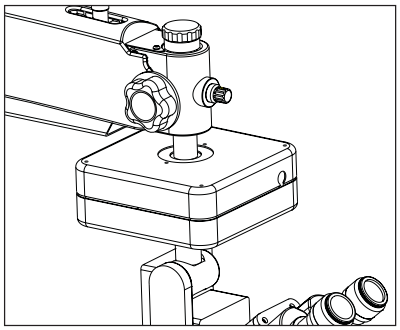


Fig. 17

9.3 Intensity control knob
It is located on the suspension arm. Brightness of field of view can be adjusted as per user comfort using intensity control knob.

9.4 Brakes
Locks the stand from unwanted movement by pressing down the two brakes provided on caster wheels. To unlock press upper portion of brake. See Figure 9.

9.5 Swivel arm locking knob
This knob helps you to lock the movement of swivel arm at the desired position after initial focusing of the attendance area by turning it clockwise.

9.6 Suspension Arm locking knob

This knob locks the movement of suspension arm at any desired position by turning it clockwise.

9.7 Coupling locking knob

This knob is located on the suspension arm and helps to lock the position of observation head at any desired point by turning it clockwise.

9.8 Up / Down Movement Control Knob
Locks the UP/Down movement of Suspension arm at a desired position after initial focusing of the attendance area. Fine focusing is done using F.O.V.

10 INSTRUCTIONS FOR USING THE MICROSCOPE

10.1 Setting up of Microscope:

10.1.1 Lock all the brakes on base wheels after setting up of microscope on the attendance area for stability.

10.1.2 Adjust tension on suspension arm using tension adjustment screw as per your convenience by turning the knob clock wise or anti-clock wise.

10.1.3 Lock the Up & Down movement of suspension arm using locking knob after coarse focusing of the attendance area.

10.1.4 Adjust the eye distance as per IPD scale according to your convenience.

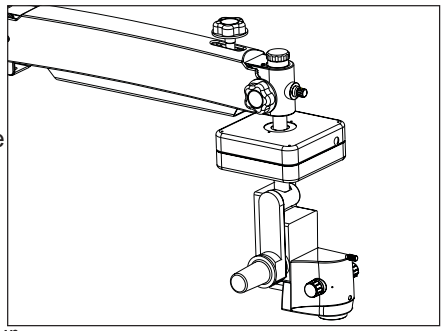


Fig. 18

10.2 Setting up of magnification (Ref. 18)

1. Adjust to highest magnification with one of the rotating knobs provided at magnification changer.
2. Fine focusing is done through F.O.V. knob
3. Absolute centering of observation area in field of view can be done by manual handle(21c)
4. Make sure that the magnification changer is engaged in the index point at the click stop position.
5. Use filter changing knob (18d) to change filters.

11 How to focus the object

1. Adjust both the eyepieces to '0' diopter adjustment.
2. Adjust IPD of the observation head using IPD scale.
3. Bring highest magnification factor in the click stop position using one of the knobs provided at the magnichanger unit. By doing so observation area will remain parfocalized in all magnifications.
4. Fine focusing is done by using foot control by pressing on up and down paddles.

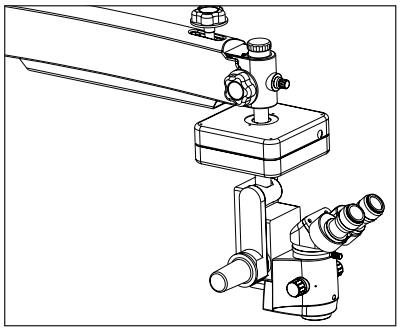


Fig. 19

12 Changing the objectives/ eyepieces

1. The objectives can be taken out by rotating it in anti-clockwise direction. It can be threated in by rotating in clockwise direction.
2. To install the Eyepieces, insert in the Eyetubes of observation head.
3. A range of objectives/eyepieces can be selected by choice.

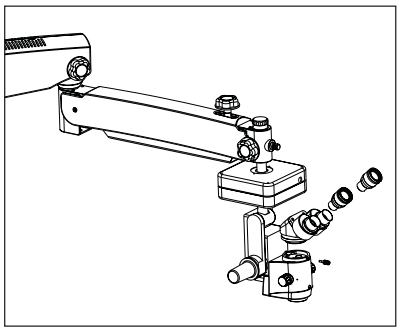


Fig. 20

13 Adjustment of Tension while using Accessories

After Supplementary accessories are mounted, the additional load of suspension arm must be compensated by adjusting tension on tension control screw provided on suspension arm by moving it clock wise or anticlockwise.

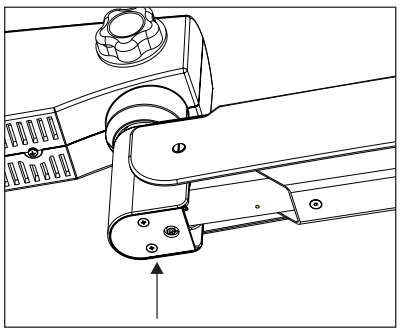


Fig. 21

14 Disinfection and Sterilization

For Diagnosis:

Moisten smooth cotton with antiseptic fluid (for example Sagrotan – P); when required , clean often touched parts, like rotating knobs, handles and so on.

After surgery:-

Sterilizable polymer covers are provided on every part that require to be touched during operation. Sterilize them after every use of the instrument.

15 CLEANING AND SERVICING

15.1 Cleaning of optical surfaces:

Remove coarse dirt particle with a clean dry air from optics outer surfaces (Objectives, Eyepieces).

Moisten smooth cotton cloth with lens cleaning agent and wipe on the lens surface gently starting from the middle of the lens to the outer edge.

15.2 Cleaning of mechanical surfaces:

All mechanical surfaces of the equipment can be cleaned by wiping with a moist cloth. Don't use any aggressive or abrasive cleaning agents.

Any household dish washing fluid can be used for cleaning residue.

15.3 Servicing:

Service whenever required, inform after-sale service.

16 TROUBLESHOOTING TABLE

Problem	Possible Cause	Remedy
No Illumination at all	Power cable not plugged	Plug in power cable.
	Power switch not pressed	Press power switch
	Defective instruments fuse	Change instrument fuse
	Defective power cable	Change power cable
	Line power failure	Contact in-house Techician
	Failure of suspension system electronics	Contact service dept.
	Light guide not properly inserted in lamp or microscope.	Insert light guide to the maximum intensity.
Insufficient Illumination	Brightness level set too low	Adjust brightness using the brightness control knob.
	Light guide not properly inserted in lamp or microscope.	Insert light guide to the maximum illumination
	Defective light guide (illumination not uniform)	Chance light guide.
Halogen lamp in the illumination system remains dark, and fan is running.	Knob for brightness control not operated	Turn the knob clock wise
	Lamp module has no contact.	Insert lamp module properly.
	Defective halogen lamp.	Switch to backup lamp.
Halogen lamp goes constantly off and on during operation.	Ventillation slots are covered or contaminated	Ventillation slots must be clear, clean them if necessary.

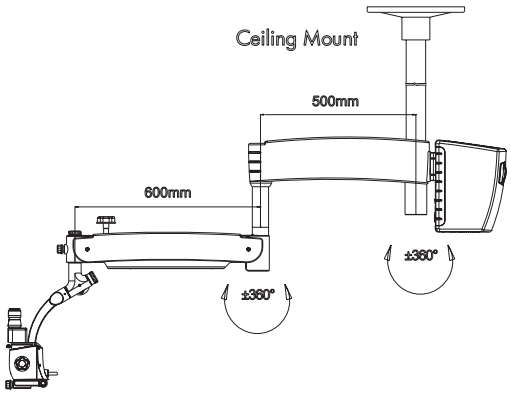
Problem	Possible Cause	Remedy
	Thermal cut-off in lamp housing is contaminated.	Clean thermal cut-off with a dry brush; blow it clean, if necessary
	Defective fan. Failure of system electronics.	Contact service dept. Illuminate surgical field using an Or illuminator. Contact service dept.
Up & Down motion of screw on suspension system too stiff	Friction adjustment screw on suspension system tightened too firmly.	Loosen friction adjustment screw on suspension system as require
Microscope Unstable	Brakes on wheels not used.	Use Brakes.
No image visible in field of view.	Magnichanger is not indexed properly.	Index magnichanger properly.

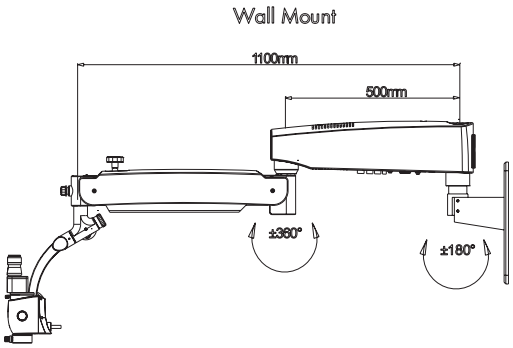
17 SPECIFICATIONS

Technical Data (Specifications)

Binocular tubes	45° inclined
Eyepieces	WF 10x/16mm with eye guards; optional WF 12.5x/16mm; WF 16x/16mm
Apochromatic Magnichanger	0.4x, 0.6x, 1.0x, 1.6x & 2.5x
Objective	f=200, motorized fine focus
Light source	15V/150W halogen, twin lamp
Built-in filters	Green & Blue
Vertical movement of arm	600 mm
Microscope carriers	XY coupling or basic Ophthalmic carrier (motorized fine focus)
Accessories	Assistant Binocular attachment, iVu OP Beam splitter integrated digital camera Module; Double Beam splitter; 0°-210° inclinable ergo tube
Type:	Floor stand
Base (Dimensions):	775mm width 762mm length
Stand Height:	1676mm
Weight of complete microscope:	72 Kg. Approx.
Elevation Stroke:	600mm
Stand Height in Horizontal Position:	1100mm
Field of illumination with F.O.V. f=200mm objective:	Ø 70mm

Dimensions


Ceiling Mount
500mm
600mm
±360°
±360°


Wall Mount
1100mm
500mm
±360°
±180°

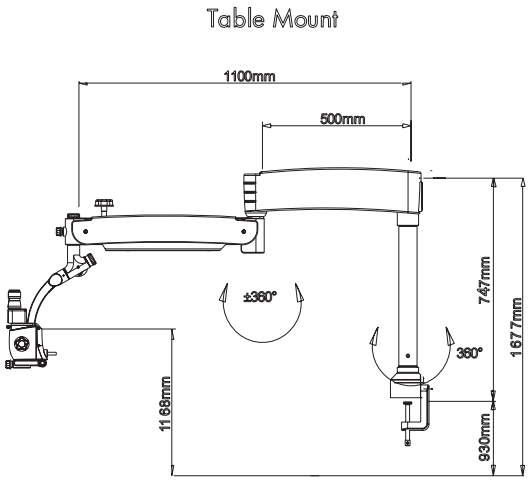
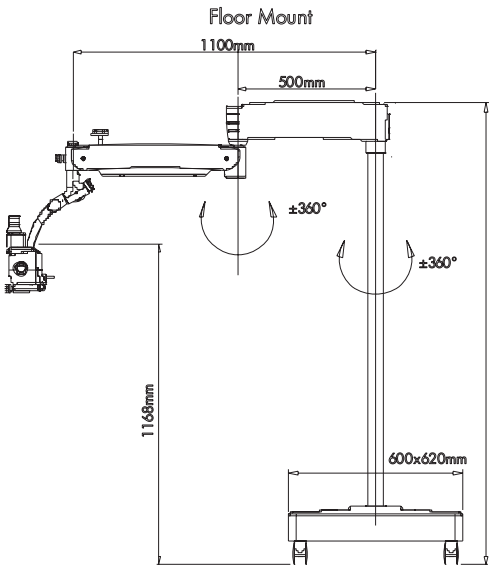


Table Mount
1100mm
500mm
±360°
747mm
1677mm
360°
1168mm
930mm


Floor Mount
1100mm
500mm
±360°
±360°
1168mm
600x620mm

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